231 The cattle of the entire country belong de jure to the
122 king (or to the highest chief), as in Ruanda. He leaves a large part of the cattle with the Batussi sub chiefs, who enjoy the usufruct, and [42] the latter, in turn, leave small herds and single animals with lower Batussi and individual Bahutu for care, further breeding, and use. A set small number of the young becomes the property of the caretaker which he holds as an irrevocable fee.

231 To a certain degree the almost mystical esteem in which
554 cattle are held is transferred to the temporary owners, caretakers, and breeders of the cattle. A person who is vested with cattle is thus raised to a higher status. A Muhutu who is vested with cattle for the usufruct and for breeding is ennobled, so to speak, by this act; he is no longer subject to compulsory labor, nor does he have to work the fields for his master. Thus, the possession of cattle has a social significance which is no less important than the economic one. Not only for religious reasons but also for social and political ones, old and sick cattle are allowed to live as long as they possibly can, both in Urundi and Ruanda, for they can still be used to vest someone with them who through this rise in status is more closely tied to the Batussi rulers and the king. It is also for this reason that the immense number of cattle owned by the king are a strong support of Batussi rule.

233 All cattle are fed in pasture (Plate 23); only older calves and sick animals are fed in the stable. During the night the cattle are kept within the inner fence of the homestead. As soon as they have been cleaned after sunrise in the morning and the cows have been milked, the herd is driven to pasture (kwahura inka). The location of grazing land is determined by the season and the growth of fodder. The herd remains there until evening. Every sixth or eighth head of cattle carries a bell (insogera) made from a bent piece of sheet iron (Plate 45) or from wood; in many areas, however, there are no cattle bells at all. Twice daily the herd is driven to the water-
233 ing place in the nearest river valley. If the valley has no
312 flowing water but only underground water to be obtained by digging holes, as is often the case during the dry months, long

233 troughs of clay are constructed near the water holds into which
[312] the drinking water is scooped. As in our Alps, the hill slopes bear the imprint of the hooves of the cattle in the form of innumerable little steps and paths since the grazing cattle will usually move along the slope in a horizontal direction which is more comfortable for grazing.

In the months after the rains the cattle can gorge themselves on green grass and they then look quite attractive, but during the dry months when all the grass is parched to a gray-brown color, the cattle become so lean that one can count all their ribs. In Urundi during the months of September and October I have seen, almost without exception, cattle which were very emaciated. Only the herds of the chiefs preserve their healthy appearance in the dry period since the best grazing land is reserved for them. The general impression is that both
[137] in Urundi and Ruanda, which are both almost exclusively grasslands, good nourishing pastures are not very extensive. It is possible to wander for days over chains of hills and plains in the sterile, thinly populated quartzite areas of the east where the growth of grass is so poor that it is not worthwhile for the natives to burn it. Since the hill ridges and the valleys in the
[311] populated areas of central and western Urundi are covered with homesteads and fields, insofar as the valleys are not filled with papyrus swamps, in general only the hill slopes for pastures. However, since every year the dry expanse of grass on them is burned off in order to obtain a new growth of green grass as soon as possible and to destroy the vermin noxious to cattle, the quality, the food value, of the grass [43] cannot improve. Also, if the herds multiply greatly, as in the northwestern areas of Urundi and in most of Ruanda, the pastures are soon over-
[246] stocked. The Batussi and Bahutu do not grow any fodder with a high food value which could compensate for the lack of good grazing land. As a result most cattle suffer from malnutrition, and if then a contagious disease is brought into the country or if it is caused in the area itself through infectious vermin, etc., the animals with low resistance succumb to it in great numbers. The available grazing land is then sufficient for the

245 cultivation requires hardly any work at all engenders laziness among those tribes who live almost entirely on bananas, as, for instance, the peoples living in the areas around Lake Victoria. Cultural progress through work is forced upon the population in this area only by their chiefs (Kahigi, Mugaráwua, and others) who are members of Hamitic Bahinda families. However, in Urundi and Ruanda the climate and topography of the area force the people to grow not only bananas but a whole series of other agricultural produce which the soil yields only after hard work with the hoe. There the limited banana cultivation cannot induce the same indolence among the people. However, when comparing the neglected banana plantations with the fields of other produce, it becomes evident that the former will thrive without much care. After the bunches of bananas have been gathered, the trunk withers yet it is left to stand there for quite a long time. The large dried leaves droop down, and weeds are remo removed only if they become too dense. Often no effort is made to plant young shoots, and the new striplings simply are left to grow from the rootstock. Subsequently, all of them are cut except one or two which are left for further growth. Sometimes all of them are left. For this reason the banana trees in a plantation do not grow singly, as is always the case on the coast, for instance, where reproduction and the increase in number of the plants are always effected by planting young striplings. Here, bananas grow from trunks which, in bundles of four, six, or ten, have shot from the same rootstock. Frequently, cultivated plants that are not too tall and can stand the shade are grown between the bananas such as sweet potatoes, pumpkins, beans, corn, and sorghum.

Bananas thrive best on soil which is quite moist while the plant is still growing but dry while the fruit appears and ripens. In areas where rain is plentiful, as in mountainous western Urundi, banana groves are not restricted to certain places, while in eastern Urundi with its drier climate they either nestle in the valleys so as to get sufficient water or they are found in more exposed places where water has to be piped artificially through long ducts.

● [312]

241 entire year. Even during the driest months bananas, beans, corn, sweet potatoes, and pumpkins grow there.

241 ●312 This is made possible only by artificial irrigation (uwutotsi) which the Barundi have brought to a stage of development and apply in a manner similar to the Banjaruanda. In the valley plains and on the river bottoms, water is channeled from the main stream through a whole network of larger and smaller canals and ditches and distributed over the area. Here the innumerable plots of arable ground rise above the ditches like high beds (Plate 22b). In order to irrigate the fields on the hillsides as well, the upper course of the stream is dammed up with earth and latticework so as to form a pool. From there the water is led along the mountain slopes through a ditch, which is often several kilometers long, until the desired destination is reached. Small channels lead off from this main artery at various intervals and irrigate numerous fields on the hillsides. Once a field has received enough water, the ditch leading to it is dammed up. The last fields receive only a little water because the supply has been exhausted along the route. It is amazing with what understanding of the velocity and pressure of the water the ditches have been leveled, dammed up, and conducted along the valley slopes with all their indentations and salients. If the slope is interrupted by a gully that also interrupts the course of the irrigation ditch, a long tree trunk, often brought from a long distance, is placed horizontally across the gully. Its upper side is hollowed out to form a groove through which the water may flow. There are tree viaducts of this type 30 to 40 meters long (No. 19, p. 50). The construction of such an irrigation network is the joint enterprise of the men. Each is entitled to his share of water. The equitable distribution of the water is regulated and supervised by the mutwale of the district.

I have seen a similar carefully and painstakingly constructed irrigation network -- which would do credit to any European horticulturist -- only among the Wadschagga of Kilimanjaro. It must be said, however, that the artificial irrigation in some areas of Usambara, Uluguru, Ussagara, and several other mountain regions is not much inferior to that mentioned above.

757 there are others which rely on mechanical means for an effect, as, for instance, massage, enema, hot and cold baths, and, further, a small number of surgical operations from the simple
[752] opening of a boil to (allegedly) the Caesarean operation (see above, p. 110). Difficult cases are treated by an experienced, skillful umufumu, but for simple cases every father of a family uses a number of household remedies. The art of using them is passed on from father to son. If necessary, a sick neighbor is given the benefit of them also.

[141] Generally, the first remedy tried is hot or cold water. It is used for intensive rubdowns, for long baths in treating skin diseases, aching joints, insomnia, and fever. A Murundi
[515] enjoys taking a bath whenever a sufficient supply of water is available, but as soon as possible after the bath he will rub butter on his skin. There are several natural thermal baths in Urundi
● [312] which are used not only by the people living in the vicinity. For example, a gushing thermal spring whose water temperature is 47° Centigrade is located near Kisagara, a village not far from the Mugera missionary station, and there is another one north of Tschiwitoke in the Ruzizi Valley. A kind of steam bath is given to persons with fever by alternately holding their heads and limbs over a pot of boiling, steaming water (No. 19, p. 183). Enemas of warm water to which some herbal juice has been added are very common. They are given by first introducing the end of a long hollow stalk of reed or a strong leaf folled into the form of a tube into the anus; then the person applying the treatment blows a mouthful of water through the other end of this pipe into the bowels (No. 19, p. 331). Adults frequently give an enema to themselves: they fill one of the long-necked bottle gourds with water, insert the narrow end of the long bottleneck into the anus, and then lift the calabash in such a manner as to permit the water to enter the bowels by its own weight. Enemas are used for stomach-aches of any kind, constipation, diarrhea, fever, etc.

[278] There are innumerable medicines made of inorganic, vegetable, and animal substances. Among these, poisons play a relatively minor role, for the Barundi do not even know how to make arrows poisonous. The Batwa often use very effective

134 cultivation of the famous plante médicée /Tr.: "Medici plant"/
24/ (tobacco), the sale of which provides a living for a number of families. /26/

The vast Rwrere plain covers nearly half of the Bugoyi province.
133 Not a spring or brook is to be found there. The rain water immediately
312 drains beneath the lava, which is covered by a mere 50 or 60 centimeters of arable soil. The inhabitants are compelled to cover distances varying between 10 and 20 kilometers, round trip to draw water from the brooks of the Sebeya or the Mutura. During the rainy season, they carefully save the water that collects in the crags of rocks or in small moats dug by each person around his dwelling. The owners of banana groves use the water held by the thicker husks of the banana trees. These are split lengthwise with a knife, and produce water lightly mixed with potash. The natives get used to drinking this liquid without any repugnance.

The Bagoyi who live in the mountainous area are better off than the plains people as far as water is concerned.

The northern area, called Bigogo, consists entirely of pastures.
133 It is inhabited by the herding Batutsi, who own numerous herds of cattle, the wealth of the country.

These same lands of volcanic origin, gave birth to a beautiful
[137] forest where bamboo grows along with some rare species of trees. It spreads east of Kivu in a north-south direction.

[311] The natives, ever in search of fertile fields and charcoal, have made terrible inroads into it. This is why large gaps are to be found in it.

The central and eastern provinces, the Nduga, Bwana-Mkali, Gissaka, Buganza, etc., are made up of long rolling hills, nearly always separated by small valleys which are often transformed into
[311] marshes and which are very useful for summer planting.

The Buliza, Bussigi, and Luhanga are long plateaus where numerous herds of goats, sheep, and cows graze. These areas lie at an altitude of about 2, 200 meters. /27/

Ruanda also has lakes, the most important of which is Kivu, which is 120 kilometers long and from 40 to 50 kilometers wide.

241 plants is conserved. Cow manure is reportedly used as fertilizer in the banana groves as well as in the fields, and especially on the gourd plantations in certain parts of Ruanda. In Bugoye, however, where the soil is very rich, fertilizer is not used. Here, it is said, there is danger that the growth of millet become too lush and fall down. The farmers try to avert this by binding the stalks into tiny bundles during the growing season.

312 241 One sees a great many irrigation systems north of Lake Mohasi. In Mulera, on the other hand, where there seems to be more rain, I did not see any. Frequently the water is brought in through narrow canals from dammed-up streams. For example, on the northern slope of Mount Ndisa near the Nyawarongo River I saw a water system two kilometers long [136] which descended gently to the plantations on the foothills and could be heard along its course. The main line had a number of outlets stuffed with sod, which could carry the necessary water to the pastures on the mountain slopes. The water is conducted through deep furrows separating the rectangular beds. It was only in Bgisha near Rutshuru that I saw a marshy lowland in which earth was thrown into mounds almost a meter high. These peculiar beds were sown to peas.

242 The first terraced fields which I had an opportunity to see were in the country north of Lake Mohasi, but they occur throughout the rest of northwestern Ruanda. In many cases they seem to be unintentional and were probably formed naturally when the slope was tilled. The terraces are two to three meters high.

In Ruanda there seems to be a certain crop rotation. In Itambi beans and peas are first planted on the cleared land and, after that, millet. In Mulera I was told that this rotation is also adhered to in fields that have been planted for some time. After the millet harvest, however, the ground is allowed to lie fallow. This order of rotation is not always maintained. One often sees millet planted along with beans. This occurs even in cases where there is no lack of space. I was told that beans can be harvested earlier without harming the millet.

Letting the fields lie fallow, it would seem, is also not a regular practice. In several cases I found that it was due to the

487 the general direction is maintained. One must often make considerable detours in order to keep to the more frequented, convenient main arteries. This struck me particularly when, in Njakagungu on the way from Lake Mohasi to Nsasa, I crossed the road that led from Ruanda to Karagwe. The paths hug the ridges of the hills, since travel in the valleys is very difficult because of the many swamps. The constant ascent and descent from one ridge to another makes travel very troublesome.

493 The important people of the country are carried in basket litters (ngobi) on their journeys. The litter is like a woven trough. It is made [166] of bamboo sticks (migano) which run lengthwise and are fastened to each other with strips of rattan. The trough has at least three handles on each side through which are inserted two strong bamboo sticks. The bearers carry these sticks on their heads on round cushions. They move at a gentle trot. The occupant of the litter is in a half-reclining position.

484 The chiefs travel with all the comfort of home; they are, for example, accompanied by two cows (nzishwa) which are milked en route.

[492] Only Europeans ride animals.

491 Until recently bridges were entirely unknown in Ruanda. Now one has been built on land belonging to the Ruasa Mission over the rapids of the Mukungwa which were difficult to cross. Another connects the Issawi Mission with the neighboring hills. It stretches across a swamp.

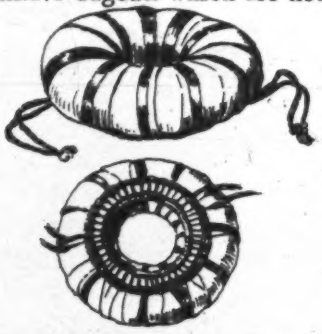
501 Since ancient times river crossings have been provided with dugouts to ferry travelers. At the Akanjaru ferry near Kihinga, I had an opportunity to see a raft made of reeds and papyrus tied together. The raft was pulled from one shore to the other by means of a rope made out of plaited papyrus. The raft was three meters square and was strong enough to carry seven porters with their loads.

491 The Akanjaru which is one kilometer wide did not have an open surface of water as much as 20 meters wide on which a raft could move. It was a thick papyrus swamp through which we would have had to wade up to our hips at that time if a comfortable crossing had not been built with reeds and papyrus stalks laid next to each other. Small dams are often constructed in the swamps to make a watering place for the cows. If the swamp has a considerable

● 312

312 gradient, a deeper free surface of water is formed above the dam, which serves as a watering place for cattle.

492 In Ruanda all goods are transported by porters. Lake Kivu
501 is the only waterway that is used. It is navigated with large, primitive dugouts which are not sea-worthy but can carry very considerable loads. Otherwise boats are used only to ferry travelers across the rivers on main thoroughfares.



133

Fig. 53. Cushions for Carrying Loads, Mulera. (1/6 actual size. III 13093. 21 1/2 centimeters in diameter.)

The rivers of Ruanda, however, have navigable stretches which in the future, with the development of transportation, will undoubtedly be used. [167] Thus, for example, I am convinced that the Nyawarongo is navigable from Mount Ndisa to the confluence of the Mukungwa and even farther. On the Kissaka border, also, I confirmed the navigability of the Kagera. Likewise, the Kagera can be navigated from the mouth of the Ruvuvu to the bend of the Mpororo.

492 Beasts of burden are not as yet used in Ruanda, although the 20 to 25 donkeys in the country, used by Europeans, are very serviceable and thrive well.

The use of waterways and beasts of burden, however, takes for granted an increase in porters' wages and a development in trade which the porters now available will no longer be able to handle.

482 In contrast to the custom in the northwest Congo areas, burdens are carried on the head in Ruanda. It is only among the Bahunde in the west that we begin to see people carry burdens on their backs. It seems that the eastern boundary of this method of carrying packs entends from Lake Kivu across to the Rutshuru River and north, along the eastern boundary of the Bakondjo territory, to the east of Lake Edward.

415 [211] The wooden bowls are usually elliptical, but sometimes they are quite long and have a handle, so that they resemble a very short-handled spoon. Twin vessels are also not uncommon and I collected a number of them in Mulera. They hold less than other vessels. These twin vessels have a common longitudinal axis, are carved from one piece of wood, and used to serve different foods at one time. The part that joins them serves as a handle. On the outer rim there is often the suggestion of a handle in the form of a knob or a loop. Simple bowls sometimes also have loops.

[212] Gourds are used to hold beer and water. In Mulera, as in the Congo Basin, large bowls (ulukiza) made of calabashes cut in half lengthwise are used for drinking. Usually, however, in Ruanda, beer is sipped through straws from calabashes with narrow necks. The necks of these jugs are not as narrow as those in Kiziba. The straws are kept in the huts in small woven or carved wooden containers (ikitembo) resembling quivers.

Beer is poured into the small openings of the calabashes with funnels. [213] However, we also find vessels used for pouring. These were collected and illustrated by Dr. Kandt. (1)

1. Kandt, R., "Gewerbe in Ruanda [Industry in Ruanda]," Zeitschrift für Ethnologie, 1904, p. 346.

Milk is stored in the house in the wooden vessels (kianzi) we have already discussed. Large gourds (kisabo) are used for making butter. There are special small vessels for storing butter. They are made either of fired clay or carved out of wood. The latter are shaped like tiny dishes, but the edges are more convergent, and they usually have a loop handle.

352 Small, one-legged stools complete the furniture, but not every household has these.

462 The Household. The women do the housework which consists of fetching water and preparing food.

● 312 Fetching the water needed for the household is probably the most onerous task, particularly in the lava district south of the

312 volcanoes. There the rivers run underground and open water holes are sometimes a great distance away, even several hours. In these regions rain water and the bitter juice of the banana stalks are used primarily, but a certain amount of water has to be fetched even in these regions. The collected rain water is very impure, for [214] it is gathered in small depressions in the ground from which it is dipped with gourds into larger vessels for storage. In Buhumba, along the route from Nyundo to Rutshuru, I saw that after a heavy rain waste matter from the dirty courtyards was washed into the water holes.

312 578 In spite of these difficulties in obtaining water, the Bahutu filled in a spring on the Karisimbi in order to get rid of the Batutsi who watered their stock there and devastated the fields. This example shows how peacefully herdsmen and farmers live together.

412

Fig. 160. Woman's Knife with Single Cutting Edge, from Mulera. (1/4 actual size. IIIE 13734. 20 centimeters long.)

Fig. 161. Woman's Knife from West Kivu. (1/4 actual size. III E10172. 32.5 centimeters long.)

515 That the women have to fetch the water may account for their greater cleanliness. It struck me in Nyundo that one always saw women washing themselves along the Ssebeya, but one seldom saw men bathing.

462 The entire process of preparing food also falls to the women, and this is not limited to cooking. They must also thresh the grain, grind it into flour, peel the produce of the fields, in most cases fetch firewood, and in Kissaka even make the pots.

412 In their work women use small, crudely constructed knives. Only in the west do we find large, double-edged, sword-like knives used by the women. They closely resemble the knife used by Babira women.